S/183/60/000/004/008/014/XX
B004/B075

AUTHORS: Meskina, E. I., Fikhman, V. D., Petrunin, N. I., Tsar'kova, A. V.

TITLE: Ways for Reducing the Consumption of Dimethyl Formamide in the Production of Nitron Fiber

PERIODICAL: Khimicheskiye volokna, 1960, No. 4, pp. 13-18

TEXT: The authors attempted to determine the losses in dimethyl formamide (DMF) in the individual stages of the production of Nitron fiber and the possibilities of reducing these losses. They experimentally studied the hydrolysis of DMF at 100°C in 25, 60, and 92% aqueous solution. A КУ-1 (KU-1) cation exchanger was used for analyzing the mixture. To study the effect of impurities on the hydrolysis, it was studied also with additions of 0.17% oxalic acid, and admixtures of stainless steel of type 1Х19Н9Т (1Kh19N9T) (this steel is used for the construction of apparatus in which Nitron fiber is precipitated). The experimental results are given in Fig. 2. The loss in DMF due to the hydrolysis at 100°C was estimated to 0.027 kg, at 80°C to 0.001 kg per kg of fiber. Furthermore, the authors studied the

effect of various rectification methods on the DMF losses. They found that the rectification of the mixture water-DMF in vacuo at only 90-100°C considerably reduces hydrolysis. A general calculation of the DMF losses in the individual divisions of the pilot plant (in kg per kg of fiber) yielded the following results:

spinning division and chemical division	0.09-0.40
rectification	0.04-0.07
vacuum distillation	0.06-0.07
	0.20-0.53

The DMF losses in the chemical division and the spinning division consist of the loss occurring when changing the filters (0.018 - 0.052 kg/kg of fiber) and the amount of DMF carried along by the fiber (0.006-0.02 kg/kg). These losses can be reduced to 0.001 kg/kg by additional washing. Further losses were caused by the removal of DMF by ventilators. These losses are due to the insufficient packing of the apparatus in the chemical division. They can be completely eliminated. In the spinning division, however, the evaporation of DMF cannot be avoided. This loss is estimated to 0.112 kg/kg. The authors discuss the regeneration of DMF from the ventilator air of the spinning division. T. M. Ivanova, collaborator of the first association

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has already studied adsorption by means of charcoal which, however, proved inadequate. On the basis of the equilibrium curve of vapor pressure of DMF above water, absorption of DMF by water is suggested. The water of the distillation column of the rectifier division is capable of absorbing up to 90% of DMF contained in the ventilator air. Considering the possible improvements, the following conclusions are drawn:

DMF losses, kg/kg Nitron chemical division	0.01 - 0.012
by the fiber	0.001
spinning division . .	0.04 - 0.045
regeneration	0.05 - 0.06
other losses	0.009- 0.008
	0.11 - 0.13
The following can be regenerated in the absorption of DMF from ventilator air by means of water:	0.035 - 0.04
remaining loss . .	0.075 - 0.09

There are 4 figures, 4 tables, and 4 references: 3 Soviet and 1 German.

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Ways for Reducing the Consumption of Dimethyl Formamide in the Production of Nitron Fiber

S/183/60/000/004/008/014/XX
B004/B075

ASSOCIATION: Kalininskiy filial VNIIV (Kalinin Branch of the All-Union Scientific Research Institute of Synthetic Fibers): Meskina, E. I., Fikhman, V. D.; Eksperimental'nyy zavod VNIIV (Pilot Plant of the All-Union Scientific Research Institute of Synthetic Fibers): Petrunin, N. I., Tsar'kova, A. V.

Legend to Fig. 2: 1) 25% solution of DMF without additions; 2) 60% solution of DMF without additions; 3) 60% DMF with addition of stainless steel of the type 1Kh18N9T; 4) 60% DMF with addition of oxalic acid (0.17% calculated for DMF); 5) 92% DMF without addition; a) hours, b) total content of HCOOH mole/$l \cdot 10^4$.

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BAKUMENKO, T.L.; FIKHMAN, V.D.

Economic aspect of the manufacture of polyvinyl chloride fibers. Khim. volok. no.5:69-71 '63. (MIRA 16:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo volokna.

PAKSHVER, A. B.; FIKHMAN, V. D.

"Formovaniye polivinilkhloridnogo volokna po mokromu sposobu."

report submitted for 35th Intl Cong, Industrial Chemistry, Warsaw, 15-19 Sep 64.

Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskikh volokon, Moscow.

ZHUL'KOV, L.A.; REYN, M.D.; FIKHMAN, V.D.

Polyvinyl chloride fibers. Khim. volok. no.4:61-63 '64. (MIRA 18:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut steklyanogo volokna.

FIKHMAN, V.D.; VAYSMAN, D.Ya.; PAKSHVER, A.B.

Increasing the whiteness of polyvinyl chloride fibers. Khim.volok.no.5: 19-22 '64. (MIRA 17:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut steklyannogo volokna.

FIKHMAN, V.D.; ASH, M.A.; VOROB'YEV, Ye.A.; PAKSHVER, A.B.

Mechanism of the formation of polyvinyl chloride fibers. Khim. volok. no.1:28-34 '65. (MIRA 18:2)

1. VNIISV (for Fikhman, Ash, Pakshver). 2. Vsesoyuznyy zaochnyy institut tekstil'noy i legkoy promyshlennosti (for Vorob'yev).

FIKHMAN, V.D.; ALEKSEYEVA, V.M.; PAKSHVER, A.B.

Effect of heat treatment on the properties of polyvinyl chloride fibers. Khim. volok. no.2:12-15 '65. (MIRA 18:6)

1. VNIISV.

FIKHTENGOL'TS, Grigoriy Mikhaylovich; GOLOVINA, L.I., red.

[Fundamentals of mathematical analysis] Osnovy matematicheskogo analiza. Vol.2. 1964. 463 p. (MIRA 18:9)

S/020/63/149/002/014/026
B108/B186

AUTHOR: Fikhtengol'ts, I. G.

TITLE: On an Einstein tensor of the order four

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 149, no. 2, 1963, 308 - 311

TEXT: The properties of the order-four tensors $\Pi_{\mu\alpha,\beta\nu}$ and $E_{\mu\alpha,\beta\nu}$ given by

$$\Pi_{\mu\alpha,\beta\nu} = g_{\mu\nu}R_{\alpha\beta} + g_{\alpha\beta}R_{\mu\nu} - g_{\nu\alpha}R_{\mu\beta} - g_{\mu\beta}R_{\nu\alpha} - {}^1/_2(g_{\mu\nu}g_{\alpha\beta} - g_{\nu\alpha}g_{\mu\beta})R; \quad (1)$$

$$R_{\mu\alpha,\beta\nu} = E_{\mu\alpha,\beta\nu} + \Pi_{\mu\alpha,\beta\nu}. \quad (2)$$

are studied. The Greek subscripts run from 0 to 3. $g_{\mu\nu}$ is the fundamental tensor, $R_{\mu\alpha,\beta\nu}$ a curvature tensor of the order four, $R_{\mu\nu}$ a curvature tensor of order two, R a scalar of curvature. In regard of four-dimensional space-time of constant curvature, the tensor $\Pi_{\mu\alpha,\beta\nu}$ is the same what the Riemann tensor $R_{il,mk}$ is for three-dimensional Euclidean space. The properties of the order-four Einstein tensor $E_{\mu\alpha,\beta\nu}$ are analyzed, and it is shown that the

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S/020/63/149/002/014/028
B108/B186

On an Einstein tensor of the order four

laws of conservation follow from the relation

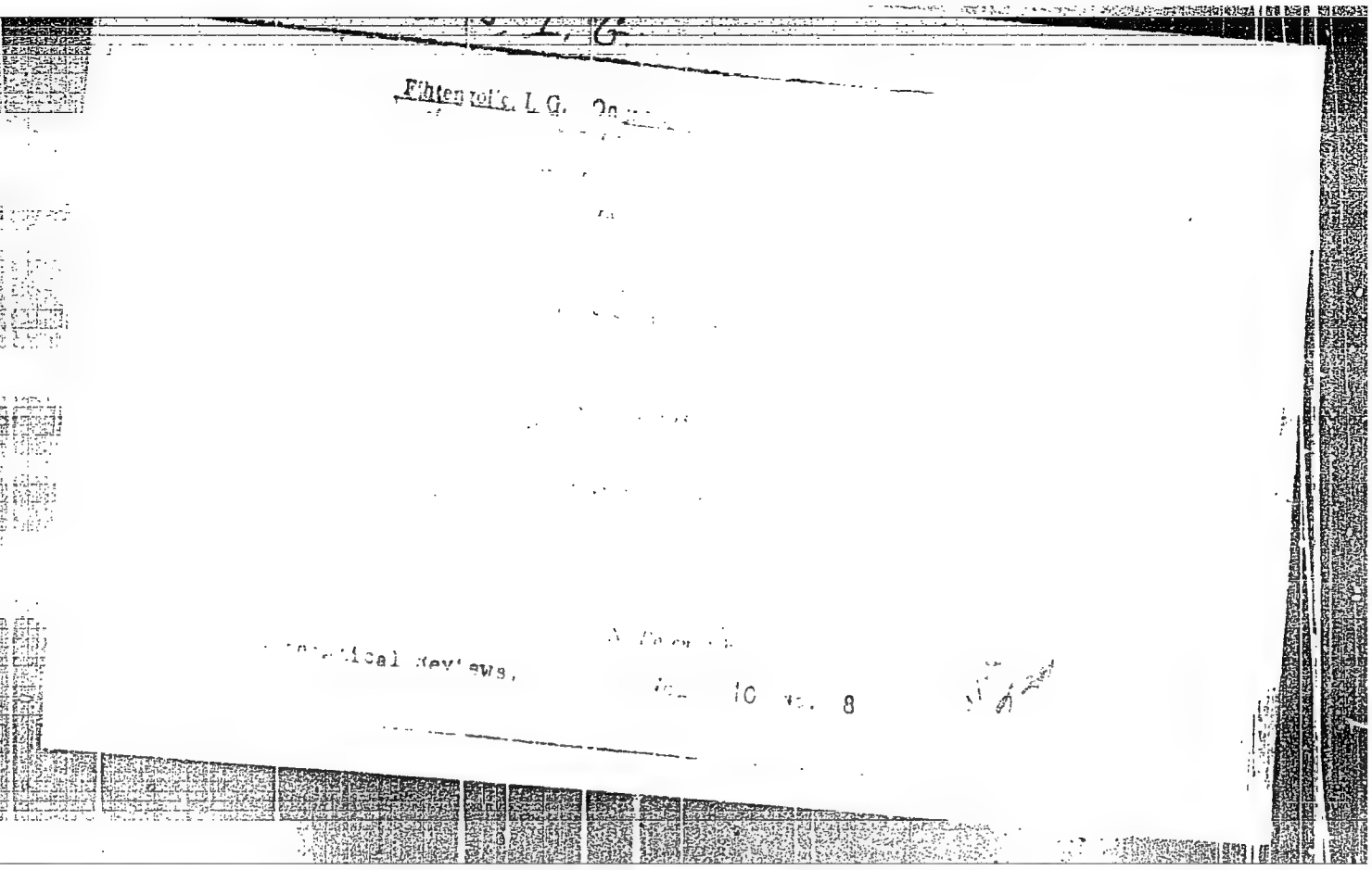
$$\frac{\partial}{\partial x_\alpha}\sqrt{-g}\,(E^{\alpha\beta}_{\mu\nu}+V^{\alpha\beta}_{\mu\nu})=0, \qquad (25),$$

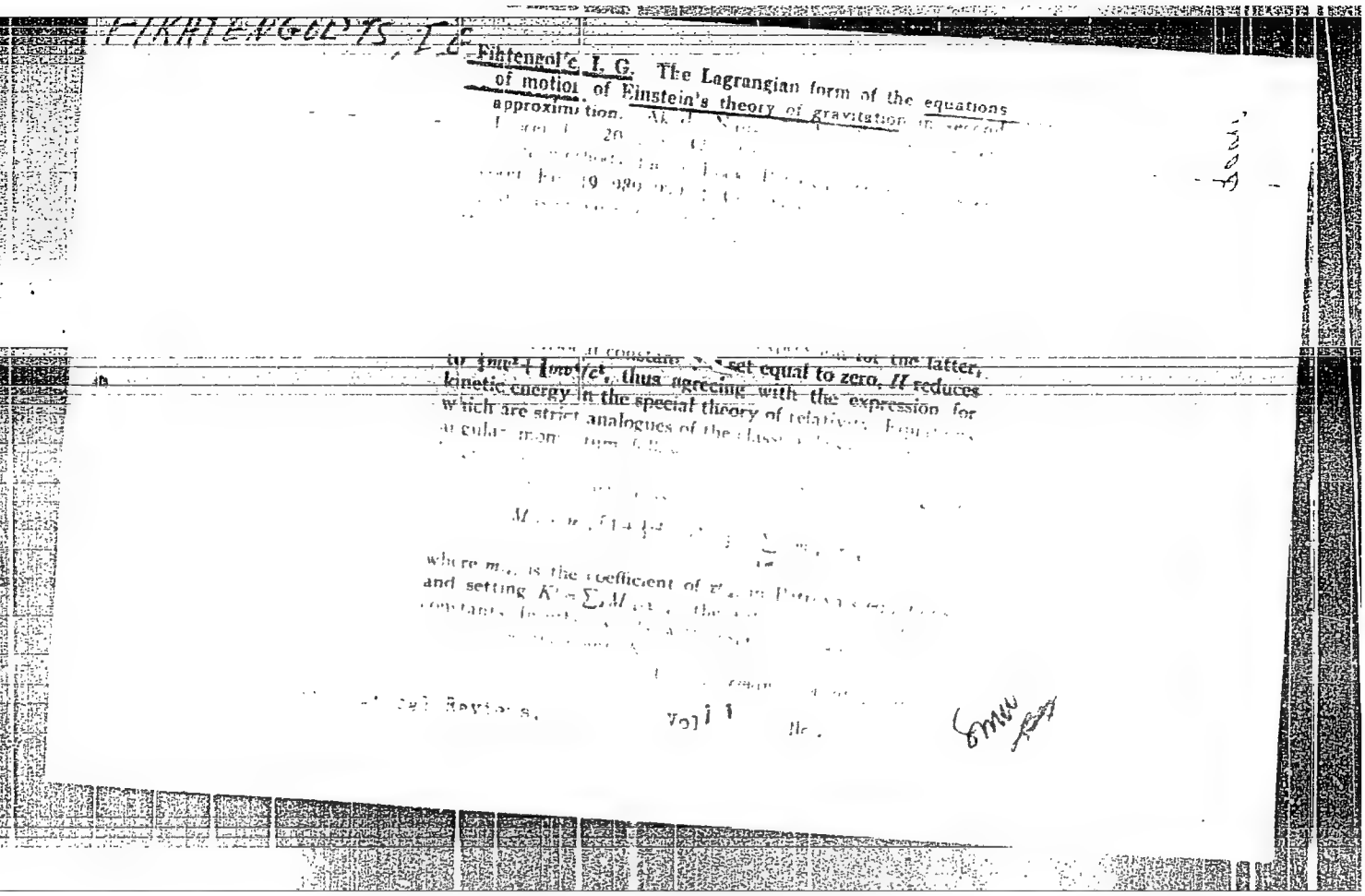
and can be expressed by order-four quantities. From these laws of conservation follow the known laws of conservation expressed in terms of second-order quantities.

PRESENTED: October 1, 1962, by V. A. Fok, Academician

SUBMITTED: September 25, 1962

Card 2/2





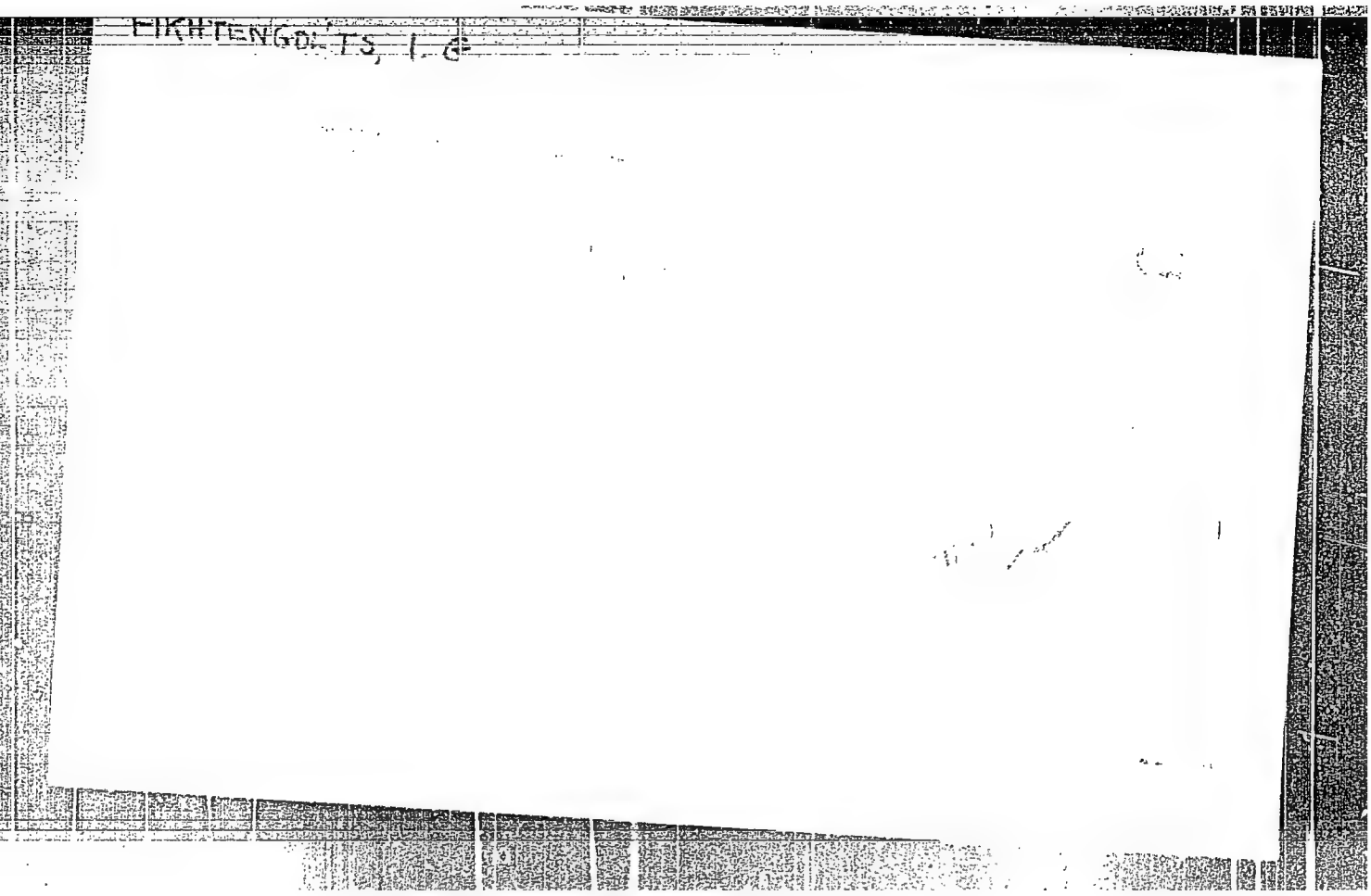
FIKHTENGOLTS, I. G.

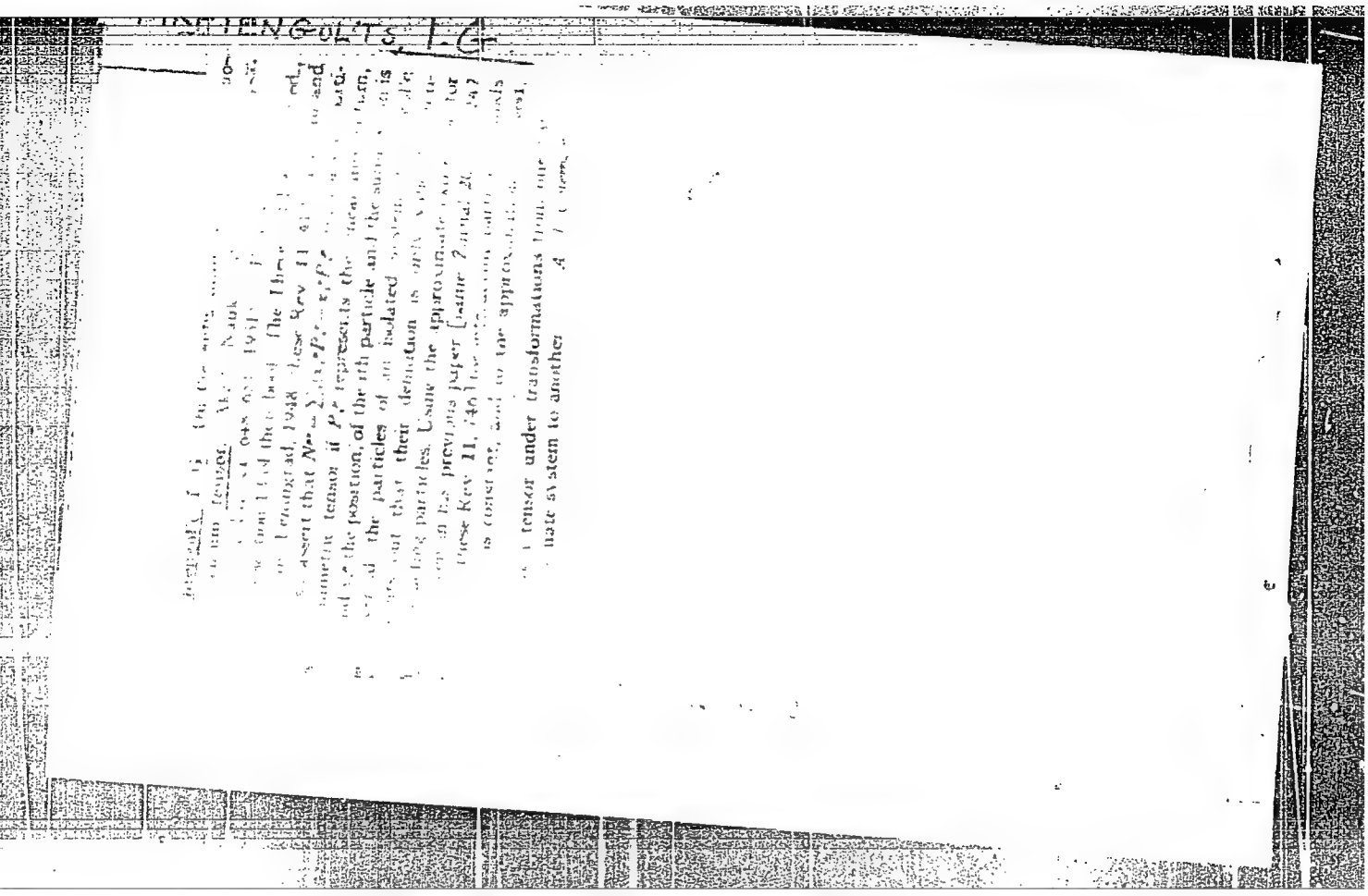
Fikhtengol'ts, I. G. The Lagrangian form of the equations of motion of Einstein's theory of gravitation in the second approximation.

to [illegible] set equal to zero. H reduces to $\sum m_i c^2 + \sum m_i v_i^2/2$, thus agreeing with the expression for kinetic energy in the special theory of relativity. Equations which are strict analogues of the classical [illegible]

where m_{ik} is the coefficient of $\dot{x}_i \dot{x}_k$ in [illegible] and setting $K = \sum M_{ik} \dot{x}_i \dot{x}_k$, the [illegible] constants [illegible]

[illegible] Reviews, Vol. 11 No.





FIKHTENGOL'TS, I.G.

AUTHOR FIKHTENGOL'TS, I.G.

TITLE On the Dependence of the Motion of Bodies in a Gravitational Field On Their Mass. 56-5-20/55
(O zavisimosti dvizheniya tel v gravitatsionnom pole ot ikh massy.- Russian)

PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki 1957, Vol 32, Nr 5, pp 1098-1101 (USSR)

ABSTRACT The paper under review determines in second approximation of the theory of gravitation the Lagrangian of the equations of motion of a body with small mass in a fixed field of n other particles with finite mass. We have for the motion of the particle

$$\delta \int \mathcal{L} \, dt = 0 \text{ with } \mathcal{L} = mc^2\left(1 - (1/c)\sqrt{g_{oo}+2g_{oi}\dot{x}_i+g_{ik}\dot{x}_i\dot{x}_k}\right).$$

In this context, m denotes the mass of the body investigated, $x_i(t)$ the Cartesian coordinates of the center of mass m in the moment t_i, and g_{oo}, g_{oi}, g_{ik} stand for the components of the fundamental tensor. The point denotes the derivation with respect to time. In order to obtain an approximate expression for $\mathcal{L}$

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On the Dependence of the Motion of Bodies In a Gravitational Field On Their Mass. 56-5-20/55

the author of the paper under review uses the approximate solution, as obtained by Fok, of the Einstein gravitational equations. In this context, the author of the present paper presupposes spherically symmetrical nonrotating bodies the linear dimensions of which are much smaller than the distances between them. Furthermore the author limits himself to magnitudes of the order of magnitude

$$\vec{v}^2/c^2, \text{ with } \vec{v}$$

denoting the velocity of the progressive motion of one of these bodies. The expressions obtained under these conditions for the components of the fundamental tensor are given in the paper under review. By substitution the approximate expression for $\mathcal{L}$ is then obtained. In a higher approximation than the first (Newton's) approximation it is necessary in the derivation of the equations of motion to start out directly from the Einstein's equations of motion. The final Lagrangian of the mechanical problem of a body is given in its explicit form. At the motion of a body of finite mass under consideration of magnitudes of

CARD 2/3

AUTHOR FIKHTENGOL'TS, I.G.

TITLE Application of the DIRAC-FOCK-PODOLSKIY Method to a Mechanical Many-Body Problem (Primeneniye metoda DIRAKA-FOKA-PODOL'SKOGO k mechanicheskoy zadache mnogikh tel. Russian) 56-6-17/56

PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 32, Nr 6, pp 1404 - 1411 (U.S.S.R.)

ABSTRACT

The system of the n-bodies is assumed here to be insulated and only the progressive motion of the body is investigated. The dependence of this motion upon the form and upon the other parameters of these bodies is not taken into account. The bodies are assumed to be spherically symmetric and the distances between them as to be much larger than their linear dimensions. The velocity of the mechanical motion is assumed here as small compared to the light velocity. The author here confines himself to an accuracy up to the amounts of the order of magnitude $\vec{r}_i^2$ (in the case of electrical interaction) or up to the amounts of the order of magnitude $\vec{r}_i^4$ (in the case of gravitation-like interaction between the particles). Here $\vec{r}_i$ denotes the rectangle of velocity of the progressive motion of the i-th body.

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At first the four-dimensional equations of motion of the system of the bodies are set up and their integrals are derived. The four-dimensional

Application of the DIRAC-FOCK-PODOLSKIY Method to a Mechanical Many-Body Problem 56-6-17/56

analogies of all ten general integrals of the motion of the insulated system of the bodies is obtained here. When constructing the four-dimensional LAGRANGIAN $\mathcal{L}$ of the mechanical system to be investigated, the energy impulse vector $p_{\gamma i}$ ($\gamma = 0,1,2,3$) can be found for all bodies.

The second chapter deals with a system of charges which are in interaction with each other.

In conclusion, a system of bodies with gravitation-like interaction is dealt with. In this case it is sufficient to find the four-dimensional LAGRANGIAN of the system; such a function is also written down here. Finally, also the problem of the connection between the inert and the heavy mass is dealt with. (No illustrations)

ASSOCIATION Not given

PRESENTED BY

SUBMITTED 28.6.1956

AVAILABLE Library of Congress

Card 2/2

24(5)

AUTHOR: Fikhtengol'ts, I. G. SOV/56-35-6-20/44

TITLE: On the Coordinate Conditions in Einstein's Theory of Gravitation (O koordinatnykh usloviyakh v teorii tyagoteniya Eynshteyna)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 6, pp 1457-1465 (USSR)

ABSTRACT: It was the aim of the present paper to derive several relations connected with the covariance of the field equations in the case of a transformation of variables. The relations between the coordinate conditions and the invariance of the field Lagrangian was established. The geometrical and physical properties of the coordinate systems corresponding to the coordinate conditions thus derived are considered. The work is divided into 5 separate parts. After a short introduction in which the problem is discussed, the consequence of the covariance of the field equation are dealt with by the first chapter. The (arbitrary) field is represented by the Lagrangian

Card 1/2 $$\frac{\partial \mathcal{L}}{\partial q_l} - \sum_{k=1}^{n} \frac{\partial}{\partial x_k} \frac{\partial \mathcal{L}}{\partial (\partial q_l / \partial x_k)} = 0; \; l = 1,2,\ldots,m$$

or by using the metric fudamental tensor g_μ by

$$\frac{\partial \mathcal{L}}{\partial g_{\mu\nu}} - \frac{\partial}{\partial x_\alpha} \frac{\partial \mathcal{L}}{\partial (\partial g_{\mu\nu}/\partial x_\alpha)} = 0.$$

In the following chapter a tensor field with linearly invariant Lagrangian is investigated, and the 20 by 4 (linear) coordinate transformation equations are explicitly written down. In chapter 3 the connections of coordinate conditions with the invariance of the field Lagrangian are shortly investigated. The next chapter deals with the coordinate conditions preeminent for steady gravitation fields, and in chapter 6 the harmonic coordinate conditions are discussed, and it is shown that they can be represented by means of the field Lagrangian in the shape

$$g_{\mu\nu}\left(\frac{\partial \mathcal{L}}{\partial (\partial g_{\mu\nu}/\partial x_\alpha)} + \frac{\partial \mathcal{L}}{\partial (\partial g_{\mu\alpha}/\partial x_\nu)} \right) = 0.$$

There are 7 references, 3 of which are Soviet.

SUBMITTED: June 17, 1958

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24(5)

AUTHOR: Fikhtengol'ts, I. G.

SOV/56-36-4-61/70

TITLE: On the Geodetic Lines in the Friedmann-Lobachevskiy Space (O geodezicheskikh liniyakh v prostranstve Fridmana-Lobachevskogo)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 4, pp 1322-1323 (USSR)

ABSTRACT: The author of the present "Letter to the Editor" investigates the equation of the geodetic lines in a space in which the following holds for ds: $ds^2 = H^2(dx_0^2 - dx_1^2 - dx_2^2 - dx_3^2)$, where H is a function of x_0 and r, $r = \sqrt{x_1^2 + x_2^2 + x_3^2}$. The equation of geodetic lines then has the form $\ddot{x}_i - \dot{x}_i \Gamma^0_{\alpha\beta} \dot{x}_\alpha \dot{x}_\beta + \Gamma^i_{\alpha\beta} \dot{x}_\alpha \dot{x}_\beta = 0$; $i = 1, 2, 3$. The $\Gamma^\nu_{\alpha\beta}$ are Christoffel symbols of the second kind; for a certain form of Γ^1_{ik} one obtains $\ddot{x}_i + \frac{1-\dot{r}^2}{H}\left(\frac{1}{r}\frac{\partial H}{\partial r} x_i + \frac{\partial H}{\partial x_0} \dot{x}_i\right) = 0$ and with $S = \sqrt{x_0^2 - r^2}$: $\ddot{x}_i + \frac{\dot{r}^2 - 1}{S}\frac{H'}{H}(x_i - \dot{x}_i x_0) = 0$.

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On the Geodetic Lines in the Friedmann-Lobachevskiy Space SOV/56-36-4-61/70

The relation $x_i = \dot{x}_i x_o$ gives $\dot{x}_i = \text{const}$. This relation makes it possible to explain the phenomenon of the expansion of the galactic systems. There is 1 Soviet reference.

ASSOCIATION: Leningradskiy institut tochnoy mekhaniki i optiki (Leningrad Institute for Precision Mechanics and Optics)

SUBMITTED: January 6, 1959

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24.4200

S/056/60/039/003/033/045
B006/B063

AUTHOR: Fikhtengol'ts, I. G.

TITLE: The Coordinate Conditions in Einstein's Theory of Gravitation. II

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 3(9), pp. 809-813

TEXT: The author shows that the coordinate conditions used by Einstein, Infeld, and Hoffman (Refs. 1-3) when deriving the equations of motion of an isolated mass system cannot be obtained from the requirement of the Lagrangian of the field of gravity having to be invariant with respect to any set of coordinate transformations. The inappropriateness of applying these coordinate conditions to astronomical problems with isolated mass systems is proved. This is shown for the simplest case, viz., a system consisting of one spherically symmetric mass, since an exact solution of gravitational equations exists for this case. V. A. Fok is mentioned. There are 7 references: 4 Soviet, 1 Canadian, and 2 US.

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The Coordinate Conditions in Einstein's Theory of Gravitation. II

S/056/60/039/003/033/045
B006/B063

SUBMITTED: April 17, 1960

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FIKHTENGOL'TS, I.G.

Coordinate conditions in Einstein's theory of gravitation. Part 2. Zhur. eksp. i teor. fiz. 39 no.3:809-813 S '60. (MIRA 13:10)
(Gravitation)

24.4600

S/044/62/000/005/033/072
C111/C333

AUTHOR: Fikhtengol'ts, I. G.

TITLE: On the problem of several bodies in relativistic mechanics

PERIODICAL: Referativnyy zhurnal, Matematika, no. 5, 1962, 96, abstract 5B435. ("Sb. nauchn. tr. kafedr matem., grafiki, khimii i teor. mekhan. Leningr. in-t tochnoy mekhan. i optiki, 1960, no. 31, 3-26)

TEXT: The author considers a system of points which influence one another. Considered are: Quantities of order $\left(\frac{v}{c}\right)^2$ with respect to the electrical interactions and quantities of order $\left(\frac{v}{c}\right)^4$ with respect to the gravitational interactions, where v is the speed of the material point. The equations of motion are determined by the variational principle

$$\delta \int_{t'}^{t''} \mathcal{L}(t, x_{\nu i}, \dot{x}_{\nu i})\, dt = 0$$

where $\mathcal{L}$ is to be determined. The basis for the construction of $\mathcal{L}$ is

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On the problem of several bodies ...

given by a theorem of Noether, which is described very exactly. It is demanded that $\mathfrak{L}$ be invariant relative to the following transformations: 1) shifting of the time axis, 2) changing of the time scale, 3) complete Lorentz group. Each of these transformations gives an integral of the equations of motion. The author obtains from this at first a formula for the 4 dimensional force which is exerted on the point by the other points, he then obtains a formula for the four dimensional vector of energy - impulse. Afterwards he deduces a four dimensional energy integral and he determines the complete energy and the inert mass of the body. The integrals of the impulse arise from the translation transformations, and the integrals of the angular momentum arise from the group of rotations. Finally, the corresponding integrals are formulated from the Lorentz group in four dimensional group. As a final result of all these preliminary calculations, $\mathfrak{L}$ is determined as

$$\mathfrak{L} = \sum_{i.} L_{oi} - V$$

where

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$$\mathfrak{L}_d = -m_i c^2 \sqrt{1 - \frac{\dot{r}_i^2}{c^2}},$$

$$V = \frac{1}{2} \sum_{i \neq k} \frac{e_i e_k}{S_{ik}} W_{ik},$$

$$S_{ik} = \sqrt{(\bar{r}_i - \bar{r}_k)^2 - c^2 (t_i - t_k)^2},$$

$$W_{ik} = \sqrt{1 + \dot{t}_i \dot{t}_k - \frac{1}{c^2} (\dot{\bar{r}}_i, \dot{\bar{r}}_k) - \frac{1}{c^2} \frac{A_{ik}}{S_{ik}^2}},$$

$$A_{ik} = \{(\dot{\bar{r}}_i, \bar{r}_i - \bar{r}_k) - c^2 \dot{t}_i (t_i - t_k)\} \{(\dot{\bar{r}}_k, \bar{r}_i - \bar{r}_k) - c^2 \dot{t}_k (t_i - t_k)\}.$$

In these formulas t_i is the time coorinate of the i-th point, where as the differentiation is done with respect to the independent variable parameter τ. If one uses the three dimensional formulation, i. e., if one has $t_1 = \ldots = t_n = t = \tau$, then the formula of the author becomes a known formula (Fok, V. A., Teoriya prostranstva, vremeni i

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On the problem of several bodies ...

tyagoteniya [Theory of space, time and gravitation], M., 1955). For the gravitational energy the complete energy and the inert mass are also calculated. Literature: 13 titles.

[Abstracter's note: Complete translation.]

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31509 S/056/60/039/003/033/045
B102/B201

4.400

AUTHOR: Fikhtengol'ts, I. C.

TITLE: Coordinate conditions in Einstein's theory of gravitation. II

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 39, no. 3 (9), 1960, 809-813

TEXT: It is shown that the coordinate conditions used by Einstein, Infeld, and Hoffman (Refs. 1-3, see below) to deal with the problem of the motion of an isolated mass system, cannot be obtained from the requirement of an invariant Lagrangian of the field of gravity with respect to any family of coordinate transformations. To prove this, the author first examined the general transformation law of the Lagrangian of the gravitational field when passing from the coordinates $x_0 \dots x_3$ to $x'_0 \dots x'_3$.

$$L' = L + Q\sqrt{-g}.$$

$$L = g^{\mu\nu}(\Gamma^{\beta}_{\mu\alpha}\Gamma^{\alpha}_{\nu\beta} - \Gamma^{\alpha}_{\mu\nu}\Gamma^{\beta}_{\alpha\beta}),$$

$$Q = (P^{\beta}_{\mu\alpha}P^{\alpha}_{\nu\beta} - P^{\alpha}_{\mu\nu}P^{\beta}_{\alpha\beta})\mathfrak{G}^{\mu\nu} + P^{\nu}_{\mu\nu}\frac{\partial \mathfrak{G}^{\mu\alpha}}{\partial x_{\alpha}} - P^{\alpha}_{\mu\nu}\frac{\partial \mathfrak{G}^{\mu\nu}}{\partial x_{\alpha}}, \qquad (1)\text{-}(5)$$

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$$P^{\alpha}_{\mu\nu} = \frac{\partial x'_{\alpha}}{\partial x_{\mu}} \frac{\partial x'_{\tau}}{\partial x_{\nu}} \frac{\partial^2 x_{\alpha}}{\partial x'_{\sigma} \partial x'_{\tau}},$$

$$\mathfrak{G}^{\mu\nu} = \sqrt{-g}\, g^{\mu\nu}.$$

is obtained by proceeding from the well-known transformation law for the Christoffel symbols of second kind

$$\Gamma'^{\alpha}_{\mu\nu} = \frac{\partial x'_{\alpha}}{\partial x_{\rho}} \frac{\partial x_{\sigma}}{\partial x'_{\mu}} \frac{\partial x_{\tau}}{\partial x'_{\nu}} \Gamma^{\rho}_{\sigma\tau} + \frac{\partial x'_{\alpha}}{\partial x_{\rho}} \frac{\partial^2 x_{\rho}}{\partial x'_{\mu} \partial x'_{\nu}},$$

The Greek indices assume the values 0, 1, 2, 3. The expressions for Q can be simplified considerably if

$P^{\beta}_{\mu\alpha} P^{\alpha}_{\nu\beta} - P^{\alpha}_{\mu\nu} P^{\beta}_{\alpha\beta} = P^{\alpha}_{\mu\alpha}/\partial x_{\nu} - P^{\alpha}_{\mu\nu}/\partial x_{\alpha}$. Then one obtains for Q

$\frac{\partial}{\partial x_{\alpha}} (P^{\nu}_{\mu\nu} \mathfrak{G}^{\mu\alpha} - P^{\alpha}_{\mu\nu} \mathfrak{G}^{\mu\nu})$ (6). (1) and (6) provide the transformation law for the function L. If, in addition, the transformation law of the determinant g is considered, it will be found that the transformation law of

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Coordinate conditions ...

the Lagrangian $\mathfrak{L} = \sqrt{-g}L$ can be expressed in the form

$$\mathfrak{L}'\left|\frac{D(x_0', x_1', x_2', x_3')}{D(x_0, x_1, x_2, x_3)}\right| - \mathfrak{L} = Q. \qquad (8).$$

This, in turn, leads to the conclusion that the requirement of an invariant field Lagrangian with respect to any coordinate transformation assumes the form

$$\frac{\partial}{\partial x_\alpha}(P^\nu_{\mu\nu}\mathfrak{G}^{\mu\alpha} - P^\alpha_{\mu\nu}\mathfrak{G}^{\mu\nu}) = 0. \qquad (9).$$

The coordinate condition

$$\partial\gamma_{0k}/\partial x_k - \partial\gamma_{00}/\partial x_0 = 0, \quad \partial\gamma_{ik}/\partial x_k = 0, \qquad (10),$$

used by Einstein, Infeld, and Hoffman, is then examined; here, $\gamma_{\mu\nu} = h_{\mu\nu} - \frac{1}{2}\eta_{\mu\nu}\eta^{\alpha\beta}h_{\alpha\beta}$, where $g_{\mu\nu} = \eta_{\mu\nu} + h_{\mu\nu}$, $g^{\mu\nu} = \eta^{\mu\nu} + h^{\mu\nu}$, $\eta_{00} = \eta^{00} = 1$, $\eta_{oi} = \eta^{oi} = 0$, $\eta_{ik} = \eta^{ik} = -\delta_{ik}$. From this, in turn, it follows that $\gamma_{\mu\nu} = \eta_{\mu\nu} + g_{\mu\nu} - \frac{1}{2}\eta_{\mu\nu}\eta^{\alpha\beta}g_{\alpha\beta}$. Conditions (10) can thus be obtained in the

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Coordinate conditions ...

form

$$\frac{\partial g_{0k}}{\partial x_k}-\frac{1}{2}\frac{\partial}{\partial x_0}(g_{00}+g_{11}+g_{22}+g_{33})=0,$$
$$\frac{\partial g_{lk}}{\partial x_k}+\frac{1}{2}\frac{\partial}{\partial x_l}(g_{00}-g_{11}-g_{22}-g_{33})=0. \qquad (14).$$

For the purpose of showing that the Einstein-Infeld conditions cannot be obtained from the requirement of an invariant field Lagrangian with respect to any coordinate-transformation family, it is sufficient to show that, according to (9), (14) does not lead to equations being linear in $\mathfrak{G}^{\mu\nu}$. This is proved here on the assumption that the deviation of the metric from Galilei's is small. In this approximation and with

$$\mathfrak{G}^{00}=1+4U/c^2+4S/c^4,\quad \mathfrak{G}^{0l}=4U_l/c^3+4S_l/c^5,\quad \mathfrak{G}^{lk}=-\delta_{lk}+4S_{lk}/c^4. \qquad (15)$$

$$g_{00}=-\frac{1}{2}(\mathfrak{G}^{00}+\mathfrak{G}^{11}+\mathfrak{G}^{22}+\mathfrak{G}^{33})+\frac{3}{8}(\mathfrak{G}^{00}-1)^2,$$
$$g_{0l}=\mathfrak{G}^{0l}-\frac{1}{2}(\mathfrak{G}^{00}-1)\mathfrak{G}^{0l}, \qquad (16)$$
$$g_{lk}=-\frac{1}{2}[\mathfrak{G}^{00}-\mathfrak{G}^{11}-\mathfrak{G}^{22}-\mathfrak{G}^{33}-\frac{1}{4}(\mathfrak{G}^{00}-1)^2]\delta_{lk}-\mathfrak{G}^{lk}.$$

Card 4/5

Coordinate conditions ...

the following relation is found for the Einstein-Infeld condition:

$$\frac{\partial \mathfrak{G}^{0\mu}}{\partial x_\mu} = \frac{3}{8}\frac{\partial}{\partial x_0}(\mathfrak{G}^{00}-1)^2+\frac{1}{2}\frac{\partial}{\partial x_k}[(\mathfrak{G}^{00}-1)\mathfrak{G}^{0k}], \qquad \frac{\partial \mathfrak{G}^{ik}}{\partial x_k} = \frac{1}{8}\frac{\partial}{\partial x_i}(\mathfrak{G}^{00}-1)^2. \tag{17}$$

It may be seen from (17) that the Einstein-Infeld condition does not lead to equations being linear with respect to $\mathfrak{G}^{\mu\nu}$. Further estimations are made in this respect with the aid of a rougher approximation. V. A. Fok is mentioned. There are 7 references: 4 Soviet-bloc and 3 non-Soviet-bloc. The three references to English-language publications read as follows: Ref. 1: A. Einstein, L. Infeld, B. Hoffman, Ann. Math. 39, 65, 1938; Ref. 2: A. Einstein, L. Infeld, Ann. Math. 41, 455, 1940; Ref. 3: A. Einstein, L. Infeld, Canad. J. Math. 1, 209, 1949.

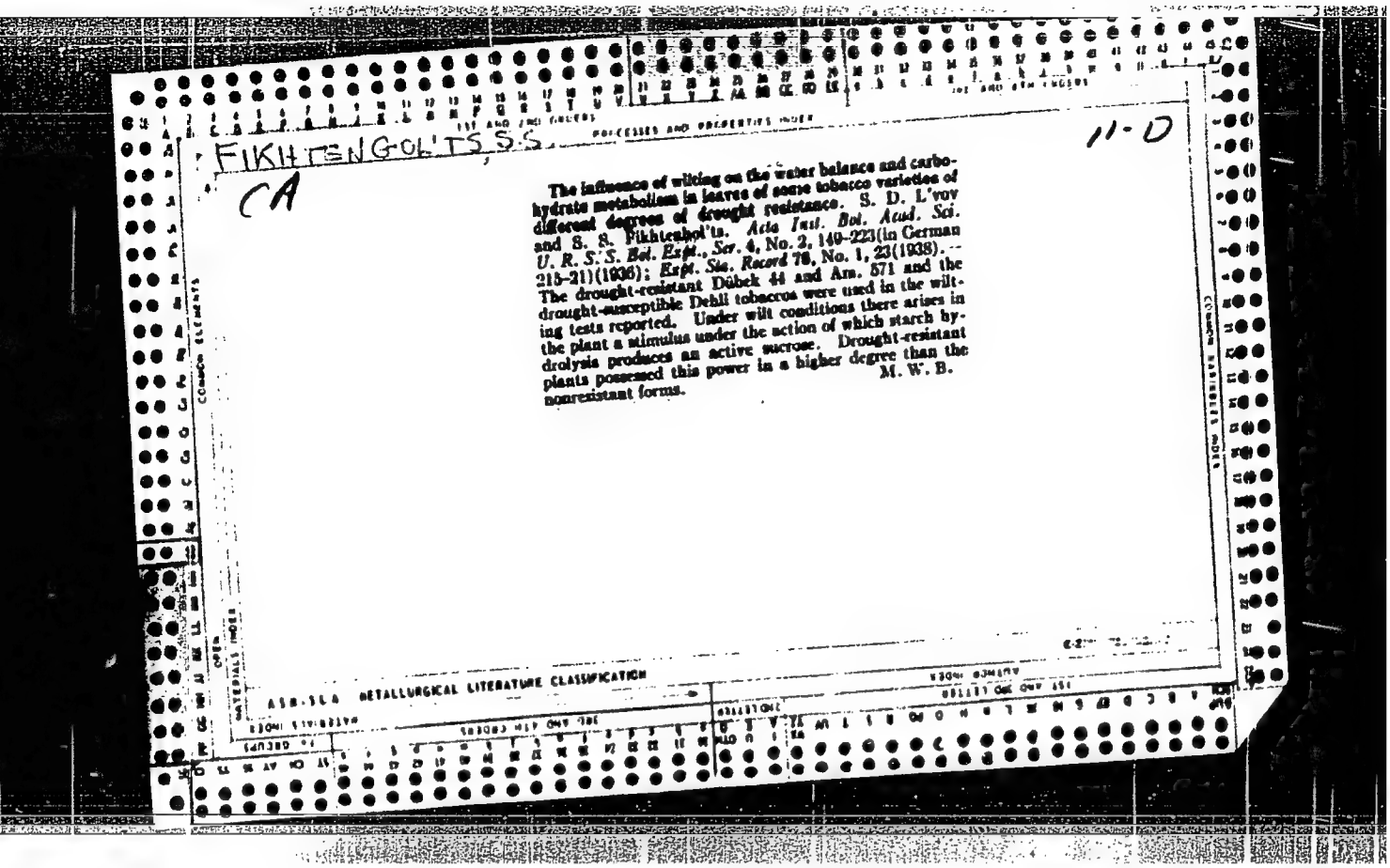
SUBMITTED: April 17, 1960

Card 5/5

FIKHTENGOL'TS, I.G.

Einstein's fourth rank tensor. Dokl. AN SSSR 149 no.2:308-311 Mr '63. (MIRA 16:3)

1. Predstavleno akademikom V.A. Fokom.
(Calculus of tensors)



FIKHTENGOL'TS, S. S.

CA

11-D

The influence of wilting on the water balance and carbohydrate metabolism in leaves of some tobacco varieties of different degrees of drought resistance. S. D. L'vov and S. S. Fikhtengol'ts. *Acta Inst. Bot. Acad. Sci. U. R. S. S. Bot. Expt., Ser.* 4, No. 2, 149-223(in German 215-21)(1938); *Expt. Sta. Record* 78, No. 1, 23(1938).—The drought-resistant Dübek 44 and Am. 571 and the drought-susceptible Dehli tobaccos were used in the wilting tests reported. Under wilt conditions there arises in the plant a stimulus under the action of which starch hydrolysis produces an active sucrose. Drought-resistant plants possessed this power in a higher degree than the nonresistant forms. M. W. B.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

USSR

The plant as a source of carotene-provitamin A; the mechanism controlling its content in the leaves, according to types, layer levels, and harvest periods. S. D. Ivanov, M. V. Afanas'eva, M. G. Kubli, and S. S. Pikhtengol'ts. *Trudy Leningrad. Obshchestva Estestvoispytatelei* 70, No. 2, 20–46 (1950).—A comparative study was made [illegible] tene content of a variety of garden vegetables and [illegible] of the Saratov region. Preliminary studies showed that the types richest in carotene develop [illegible] growth, and consequently yield a maximum [illegible] leaf layer area. The carotene content increases with [illegible] layers from the lower leaf layers up [illegible] foliage. The upper leaves of such plants are characterized by an increasing intensity of their physiological activity, pointing to the possibility of the existence of some relation between carotene content and the "life tonus" of the plants. During the summer season, as the plants mature and their "life tonus" is lowered, the carotene content becomes reduced. Some varieties of tomato plants form excepti[illegible] since they continue sending out side shoots until late in the fall. A study was made of the nature of the carotene break-

down during the season of leaf shedding of the following: wild grape, whose leaves change from green to red; golden currant and maple, whose leaves turn yellow; and lilac, whose leaves retain the green color even after shedding. There was a gradual reduction in the carotene content up to the time of shedding in all, being of greater magnitude in the leaves turning red or yellow. After the shedding, the carotene of the red and yellow leaves continued to break down, while in the green leaves of the lilac it attained a stable level which remained for 2 months. According to Lyubimenko a relation exists between the plastin plant pigments and the protein carriers. It is thought that, in media, the breakdown of chlorophyl and carotene in the fall is conditioned by the breakdown of the protein complexes into a mol. state. In the lilac leaves the protein complex is of a firmer constitution and stabilizes the considerable residue of the chlorophyl and carotene in the shedding leaves.

U. S. Levine

USSR

2365. Colorimetric method for determining small amounts of thallium. V. S. Fikhtengol'ts and N. P. Kozlova (*Zavod. Lab.*, 1955, 21, 4, 407-408). —The method is designed for determining small amounts of Tl in the air. Oxidation of Tl^{I} to Tl^{III} is effected best by Cl from the reaction of $KMnO_4$ and HCl. The colorimetric determination is based on the reaction of $TlCl_3$ with KI and the intensity of the colour of the iodine liberated with starch. *Procedure*.—A known volume of air is sucked through a tube containing cotton wool moistened with *N* HCl. The cotton wool is extracted by three treatments with boiling *N* HCl and the extract is heated with 2 to 3 ml of 0·1 *N* $KMnO_4$ until the liquid is colourless. The solution is evaporated to dryness, the residue is dissolved in 5 ml of 0·1 *N* HCl and mixed with 1 ml of freshly prepared 0·2 per cent. KI solution and 1·5 ml of starch solution, prepared by mixing 0·5 g of starch with 20 ml of 13 per cent. NaCl solution, adding the mixture to 80 ml of boiling 13 per cent. NaCl solution, boiling carefully for 3 min., and then filtering. The colour intensity attains its maximum in 30 min. and remains unchanged for a further 90 min. The intensity is measured visually against a set of standards, or photometrically, with a red filter. G. S. Smith

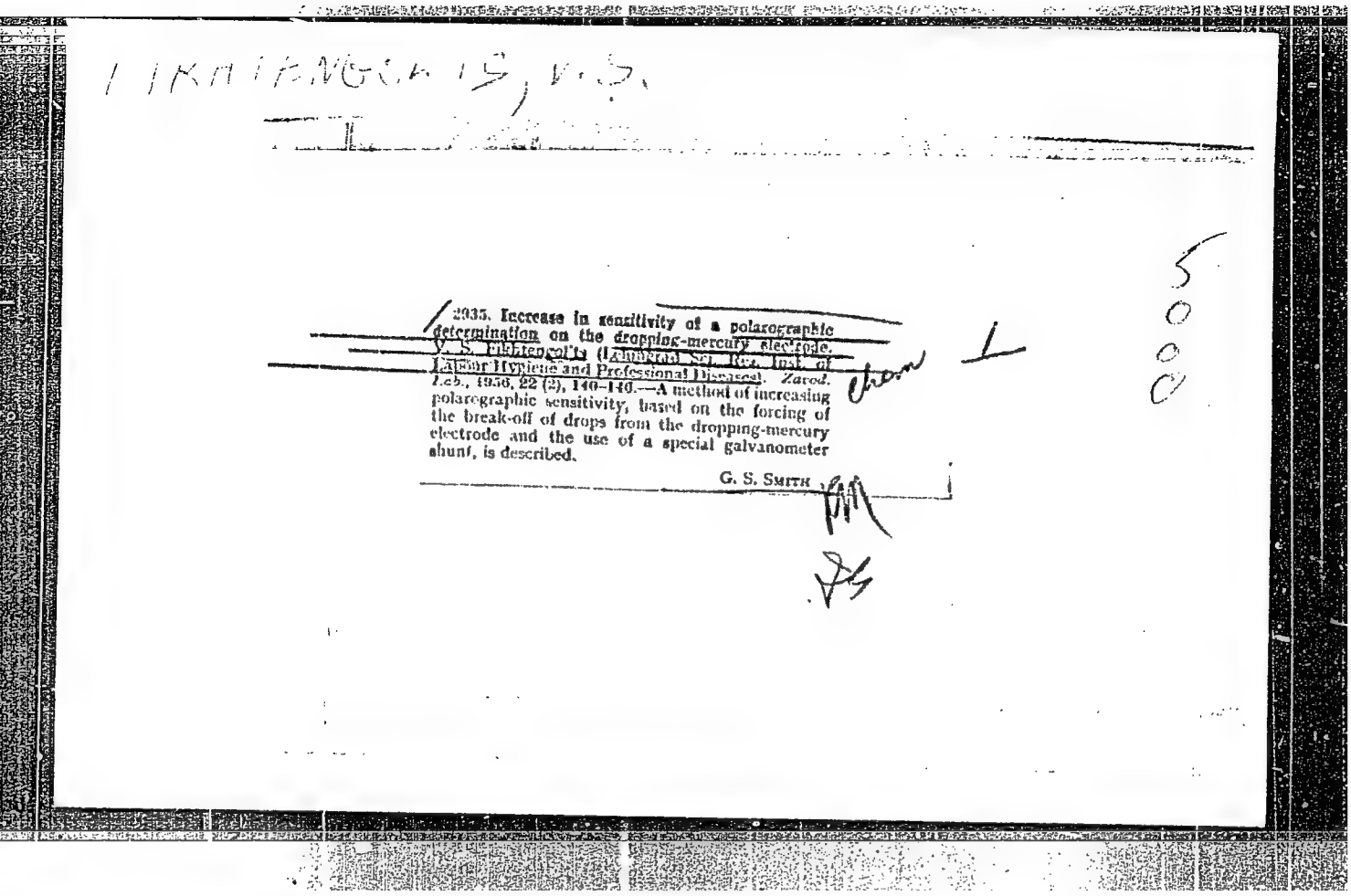
FIKHTENGOL'TS, V.S., kandidat khimicheskikh nauk

Obtaining derivative curves on the visual polarograph. Zav.lab.21 no.8:1004 '55. (MLRA 8:11)

(Polarography)

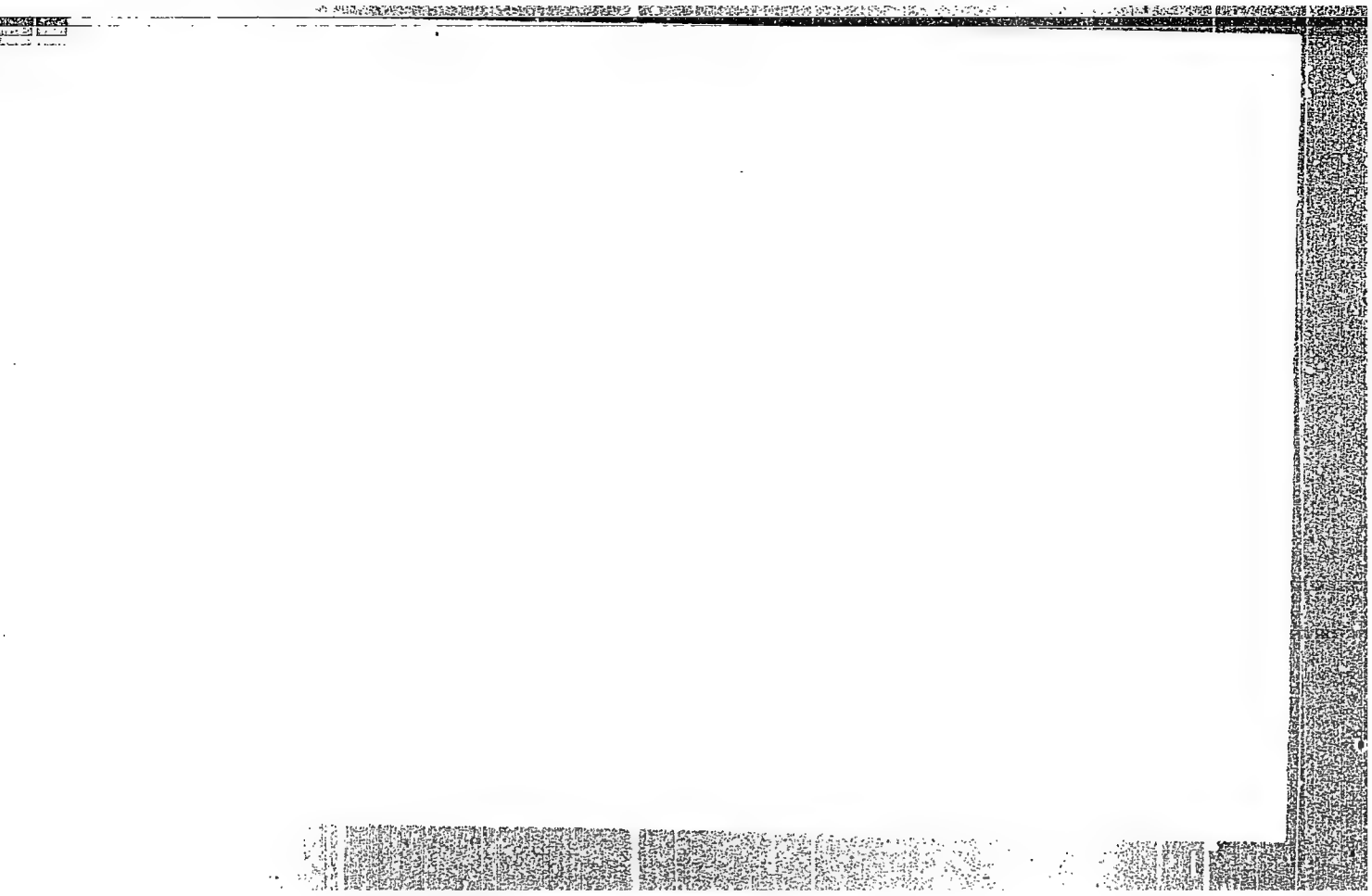
1009. **Separate polarographic determination of manganese oxides of different valency.** V. S. Fikhtengol'ts (State Sci. Res. Inst. Hygiene of Work and Illness, Leningrad). *Zavod. Lab.*, 1955, **21** (9), 1036–1038.—To analyse a mixture of MnO, Mn_3O_4, Mn_2O_3 and MnO_2, several mg of sample are treated at 100° C for 60 min. with an acidified pyrophosphate solution (vol. not stated), prepared by mixing 100 ml of 2 *M* $K_4P_2O_7$ with 25·5 ml of dil. H_2SO_4 (1 + 1) and 250 to 300 ml of water and then making up to 500 ml with water. The MnO_2 is insol., but the other oxides dissolve. The solution is filtered. One portion of the filtrate is shaken for 10 min. with 0·1 g of PbO_2. Measurement of the polarographic wave at + 0·1 V with reference to the saturated calomel electrode gives Mn^{++} corresponding to the total Mn^{++} plus Mn^{+++}. From another portion of the solution, Mn^{+++} alone are found. The MnO_2 is determined by heating the washed ppt. with dil. H_2SO_4 (1 + 5) and 1 or 2 ml of *N* oxalic acid, evaporating the filtrate to dryness with a few drops of 20 per cent. HNO_3 solution, igniting the residue at 450° to 500° C for 30 to 60 min., dissolving in 0·1 *N* K_2SO_4 and measuring the polarographic wave.

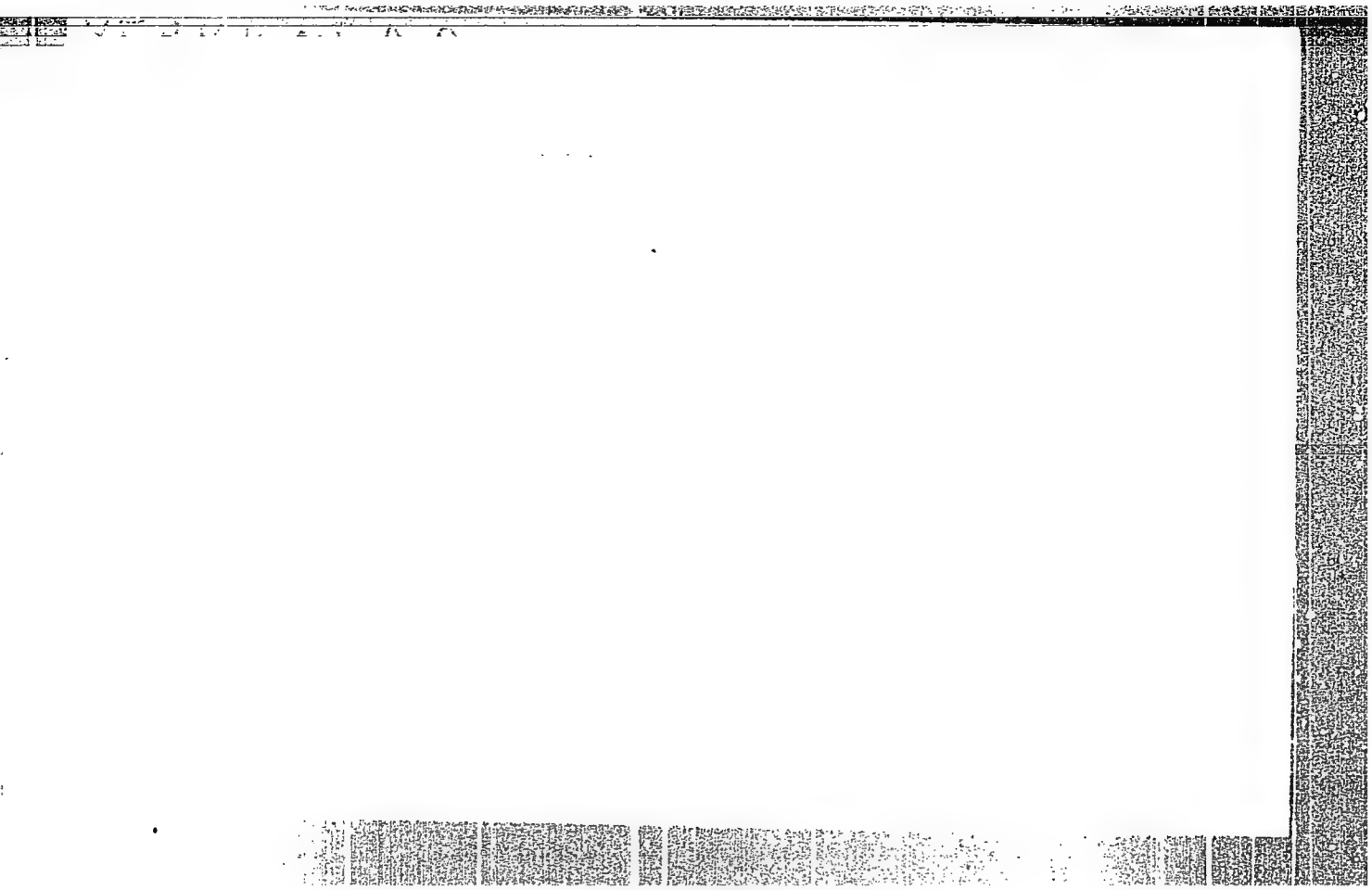
G. S. Smith



2035. Increase in sensitivity of a polarographic determination on the dropping-mercury electrode. V. S. Fikhtengol'ts (Leningrad Sci. Res. Inst. of Labour Hygiene and Professional Diseases). *Zavod. Lab.*, 1956, 22 (2), 140–140.—A method of increasing polarographic sensitivity, based on the forcing of the break-off of drops from the dropping-mercury electrode and the use of a special galvanometer shunt, is described.

G. S. SMITH





APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000413020004-7"

AUTEORS: Fikhtengol'ts, V.S., Kozlova, N.P. 32-8-12/61

TITLE: A Rapid Method for Determining Nickel Carbonyl in the Air (Bystryy metod opredeleniya karbonila nikelya v vozdukhe)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 8, pp. 917-917 (USSR)

ABSTRACT: In the production process as well as during the application of nickel carbonyl, which is a strong poison, the possibility has to exist always to control the air for its content. The paper recommends a method which is based on the reactivity of nickel carbonyl to haloids. Special absorbers are used for a continuous removal of nickel carbonyl from the air. In this connection it is recommended here to use a 1,5 % solution of iodine in carbon tetrachloride. For a rapid control of nickel carbonyl in the air of laboratories it is recommended to make a scale of test tubes with sample reactives in which the reactive elements, after an exposure of 3 - 5 minutes, are well shut and sealed with paraffin wax and thus stored in the dark. If necessary, they are used for comparison (according to their color nuance). This scale must, however, be controlled from time to time. The paper also describes an absorber constructed by Polezhayev. There are 2 tables.

Card 1/2

A Rapid Method for Determining Nickel Carbonyl in the Air. 32-8-12/61

ASSOCIATION: Leningrad Institute for Labor Hygiene and Occupational Diseases (Leningradskiy institut gigiyeny truda i profzabolevaniy)

AVAILABLE: Library of Congress

Card 2/2

FIKHTENGOL'TS, V.S.; KLEBANSKIY, A.L.

Synthesis of silicon organic compounds. Part 2. Relative activity of the different types of contact mass used for the synthesis of methylchlorosilanes. Zhur. ob. khim. 27 no.9:2475-2479 S '57. (MIRA 11:3)

(Silane) (Chemistry, Organic--Synthesis)

FIKHTENGOL'TS, V.S.

KLEBANSKIY, A.L.; FIKHTENGOL'TS, V.S.

Synthesis of silicon organic compounds. Part 3: Study of direct synthesis of methylchlorosilanes. Zhur.ob.khim. 27 no.10:2648-2653 O '57. (MIRA 11:4)

(Silane)

FIKHTENGOL'TS, V. S.

79-11-15/56

AUTHORS: Fikhtengol'ts, V. S., Klebanskiy, A. L., Rzhendzinskaya, K. A.

TITLE: Investigations in the Field of the Synthesis of Organosilicon Compounds. IV. Hydrolysis of Dimethyldichlorosilane With Methylalcohol, Where Noncyclic Polysiloxens and Methylchloride Form (Issledovaniye v oblasti sinteza kremniyorganicheskikh soyedineniy. IV. Gidroliz dimetildikhlorsilana metilovym spirtom s obrazovaniyem lineynykh polisiloksanov i khloristogo metila)

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 11, pp.2984-2989 (USSR)

ABSTRACT: Dialkoxy-derivatives are obtained on action of alcohols upon dimethyldichlorosilane ($(CH_3)_2SiCl_2 + 2ROH \rightarrow (CH_3)_2Si(OR)_2 + 2HCl$), but their yield is small, the residue being converted to high-molecular compounds. In the presence of aluminum, which binds hydrogen chloride the percentage rate increases up to 80 %, the high-molecular compounds being further reduced. It can be assumed that the high-molecular residue forms in the process of synthesis in the hydrolysis of the ethoxy derivatives with water that separates upon action of hydrogen chloride upon the alcohol. This made the authors think that a stepwise hydrolysis of the dimethyldichlorosilane with formation of noncyclic polysiloxens is possible in the interaction of alcohol and hydrogen chloride. When methyl-

Card 1/2

79-11-15/56

Investigations in the Field of the Synthesis of Organosilicon Compounds. IV. Hydrolysis of Dimethyldichlorosilane With Methylalcohol, Where Noncyclic Polysiloxens and Methylchlordie Form

alcohol was used it could be reckoned with the formation of methyl chloride and the regeneration of the initial product which was spent in the synthesis of dimethyldichlorosilane. When catalysts are used (H_2SO_4 and $FeCl_3$) the polysiloxens obtained as final products of the hydrolysis are converted to polycondensation products resembling caoutchouc. - Thus a method was worked out for obtaining noncyclic polysiloxens immediately from dimethylchlorosilane by hydrolysis with methyl alcohol. With an excess of methyl alcohol (250 - 300 %) the methyl chloride used for the synthesis of the dimethyldichlorosilane to be hydrolyzed can be completely regenerated. This method can be employed for the production of resins, tars and stable oils, with utilization of the by-products of the dimethyldichlorosilane synthesis. The rubber-like polycondensation products gave satisfactory practical results after vulcanization. There are 1 figure, 4 tables, and 5 references, 1 of which is Slavic.

SUBMITTED: October 22, 1956
AVAILABLE: Library of Congress

Card 2/2 **1. Silicon compounds (Organic)-Synthesis 2. Dimethyldichlorosilane-Hydrolysis 3. Methanol-Chemical reactions**

AUTHORS: Klebanskiy, A. L., Fikhtengol'ts, V. S., Kurtsin, A. V. 79-12-28/43

TITLE: Investigations in the Field of the Synthesis of Silicon-Organic Compounds (Issledovaniye v oblasti sinteza kremniyorganicheskikh soyedineniy).
V. The Synthesis of Polysiloxanes With Combined Radicals (V. Polucheniye polisiloksanov so smeshannymi radikalami).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 12, pp. 3321-3324 (USSR).

ABSTRACT: In the present work the authors try to explain the effect of polar substituents on the characteristics of polysiloxanes. For this purpose chloromethyl- and dichloromethylderivatives of methylcxanes were produced by direct chlorination of the corresponding methylchlorosilanes with ultraviolet radiation with subsequent hydrolysis and polycondensation. The chlorination of dimethyldichlorosilane was carried out according to data from publications by conducting the sulfuric-acid dried chlorine through dimethyldichlorosilane in the stirring flash with ultraviolet radiation (quartzlamp with in the flask). After the direct chlorination of di,ethyl- and trimethylchlorosilane under these conditions the chlorinated final products were isolated. These, as well as their compounds with dimethyldichlorosilane after the hydrolyses with methylalcohol resulted in the corresponding polysiloxa-

Card 1/2

Investigations in the Field of the Synthesis of Silicon-Organic Compounds. 79-12-28/43
V. The Synthesis of Polysiloxanes With Combined Radicals.

nes. The authors stated the better solubility of the hydrolysis products, which have chloromethylderivatives, in water and methanol as well as their more complicated polycondensation compared with pure dimethylsiloxanes. The authors also showed that the presence of chloromethyl groups in the caoutchouc-type polysiloxanes causes a certain deterioration of the physico-mechanical parameters of rubber but makes it more resistible against frost. The authors assume that the chlorine atom could be replaced by the SH-group.
There are 1 table, and 6 references, 1 of which is Slavic.

SUBMITTED: October 22, 1956.

AVAILABLE: Library of Congress.

1. Silicon compounds (organic) - Synthesis

Card 2/2

FIKHTENGOL'TS, V.S.

Spectrophotometric analysis of modified rosin. Zav. lab. 27 no. 4:400-403 '61. (MIRA 14:4)

1. Nauchno-issledovatel'skiy institut sinteticheskogo kauchuka imeni S.V. Lebedeva.

(Rosin)

S/081/62/000/001/065/067
B119/B101

AUTHORS: Fikhtengol'ts, V. S., Babikov, O. I., Peyzner, A. B., Poddubnyy, I. Ya., Zolotareva, R. V.

TITLE: Ultrasonic method for determining the conversion degree during polymerization in emulsion

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 1, 1962, 535, abstract 1P230 (Vestn. tekhn. i ekon. inform. N.-i. in-t tekhn.-ekon. issled. Gos. kom-ta Sov. Min. SSSR po khimii, no. 10, 1960, 28)

TEXT: There is a linear relationship between the propagation velocity of ultrasonics and the content of dry residue (polymer) in chloroprene and butadiene styrene latexes containing no monomer. The polymer composition (butadiene/styrene ratio) affects the change of ultrasonic velocity with increasing concentration. The dependence of ultrasonic velocity on the conversion degree of latex is not linear: at first the velocity changes slowly, then it increases rapidly, and drops again toward the end of the process owing to the presence of monomer. A decrease of the monomer

Card 1/2

Ultrasonic method for ...

S/081/62/000/001/065/067
B119/B101

content in the latex increases the propagation velocity of ultrasonics to a much higher extent than a change of the polymer content. The value differences of ultrasonic velocity are sufficient for controlling polymerization, especially toward the end of the process. [Abstracter's note: Complete translation.]

Card 2/2

FIKHTENGOLTS, V.S.

S/734/61/000/000/002/003
I060/I260

AUTHORS: Fikhtenkholts, V.S., and Zolotareva, R.V.

TITLE: Spectrophotometric method of analysis of synthetic rubber

SOURCE: Leningrad. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka. Fiziko-khimicheskiye metody analiza i issledovaniya produktov proizvodstva sinteticheskogo analiza i issledovaniya produktov proizvodstva sinteticheskogo kauchuka. Leningrad, 1961. 88-120

TEXT: The purpose of this work was to develop a spectrophotometric method for the detection and determination of the content of antioxidants of various types and of nekal. Non-staining antioxidants being aromatic compounds, possess absorption bands typical for phenols in the ultraviolet region of spectrum with a maximum at 275-280 mμ. Synthetic rubber obtained by emulsion polymerization cannot be analyzed by direct spectrophotometry because the nekal present interferes with the analysis. A method has therefore been developed, based on a bathometric shift which takes place when phenols are

Card 1/5

Spectrophotometric method of analysis...

solved in an alcohol-alkaline solution. The optical density of the alkaline alcohol extract is compared with that of a neutral extract for a wavelength corresponding to the maximum absorption of antioxidants in an alkaline solution. This difference is proportional to the concentration of antioxidants, as other ingredients which do not shift their spectra in alkaline solutions, compensate mutually. A formula $C = (D\lambda - D\ alk.) \times K\ \%$ is obtained, where:
C is the gravimetric content of antioxidant;
$D\lambda$ is the difference between the optical densities of neutral and alkaline extracts at the wavelength ;
D alk - the optical density of diluted alkali, and
K - is an empiric coefficient determined with the help of calibration data.
Antioxidants, that are derivatives of aromatic mines, cannot be so determined because their absorption spectra do not shift in alcohol alkaline solutions. In the presence of nekal, their specific absorption coefficients are much higher than these of non-staining

Card 2/5

Spectrophotometric method of analysis...

antioxidants. When only antioxidant is being determined, alcohol is used as extractor; when nekal is also being determined, an alcohol-toluol solution is used. The optical densities of alcohol solutions and the content of components in rubber are measured by Firord's method. The authors obtain the formulae:

$$C_a = \frac{D'\alpha_N - D\alpha'_N}{d(\alpha_N \alpha'_a - \alpha'_N \alpha_a)}$$

$$C_N = \frac{D\alpha'_a - D'\alpha_a}{d(\alpha_N \alpha'_a - \alpha'_N \alpha_a)}$$

where:
C_N - concentration of nekal in solution in g/l;
C_a - concentration of antioxidant in solution in g/l;
α_N - specific absorption coefficient of nekal at a wavelength corresponding to the maximum absorption of nekal;
α_a - specific absorption coefficient of antioxidant at the same wave-

Card 3/5

Spectrophotometric method of analysis...

length;
D - optical density of solution at the same wavelength;
α'_N - specific absorption coefficient of nekal at a wavelength corresponding to the maximum absorption of antioxidant;
α'_a - specific absorption coefficient of antioxidant at the same wavelength;
D' - optical density of solution at the same wavelength;
d - thickness of cuvette's layer in cm.

The paper describes the determination of nekal in a dry product, in solution, and in rinsing and discharge waters.
In the first case a formula is obtained

$$C_N = \frac{(D_{289}-a)K100}{N} \text{ in weight \%;}$$

where C_N is nekal content in the analyzed sample, D_{289} is the optical density of solution at 289 $m\mu$, a - a correction for difference between the optical properties of cuvettes and K - an empirical coefficient, determined by measuring the optical density of a number

Card 4/5

S/734/61/000/000/002/003
I060/I260

Spectrophotometric method of analysis...

of solutions of various concentration at 289 mμ, as compared with water.
For rinsing and discharge water, the obtained formula is:
$C_N = (D_{289} - a) \frac{K}{10}$ in weight %; turbid discharge waters are filtered, the residue on filter solved in hot water (in amount equal to that of filtrate) and both solutions are poured together. There are 4 figures and 2 tables.

Card 5/5

DOLGOPLOSK, S.B.; KLEBANSKIY, A.L.; FOMINA, L.P.; FIKHTENGOL'TS, V.S.; SHVARTS, Ye.Yu.

Siloxane polymers with phenylene links in the main chain. Dokl. AN SSSR 150 no.4:813-815 Je '63. (MIRA 16:6)

1. Predstavleno akademikom S.S. Medvedevym.
(Siloxanes) (Polymers)

ISAKOVA, N.A.; POLIKARPOVA, V.F.; MOGILEVSKAYA, R.A.; REMIZ, Z.K.; BELOVA, G.A.; FIKHTENGOL'TS, V.S.; GARMONOV, I.V., red.; MYASNIKOVA, L.B., red.

[Analysis of the products of the synthetic rubber industry] Analiz produktov proizvodstva sinteticheskikh kauchukov. Moskva, Khimiia, 1964. 315 p. (MIRA 17:12)

1. Leningrad. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka.

FIKHTENGOL'TS, V.S.; ZOLOTAREVA, R.V.; L'VOV, Yu.A.; STOLYAROV, B.V., red.

[Atlas of the ultraviolet absorption spectra of substances used in the production of synthetic rubbers] Atlas ul'trafioletovykh spektrov pogloshcheniia veshchestv, primeniaiushchikhsia v proizvodstve sinteticheskikh kauchukov. Moskva, Khimiia, 1965. 113 p.
(MIRA 18:7)

KRASOVSKIY, V.P.; FIKIDOV, I.G.

Magnetocaloric effect in the region of low temperature transformation of magnetite. Zhur. eksp. i teor. fiz. 39 no.2:235-241 Ag '60.
(MIRA 13:9)

1. Institut fiziki metallov Akademii nauk SSSR.
(Magnetite)

ACC NR: AP7000676 (A) SOURCE CODE: UR/0066/66/000/011/0033/0037

AUTHORS: Fikiin, A.; Dichev, St.; Fikiyna, Iv.

ORG: Scientific Research Institute of Canning Industry, Plovdiv, Bulgaria (Nauchno-issledovatel'skiy institut konservnoy promyshlennosti)

TITLE: Fundamental parameters characterizing the fluidization process of layers of fruits and vegetables

SOURCE: Kholodil'naya tekhnika, no. 11, 1966, 33-37

TOPIC TAGS: food preservation, refrigeration equipment, laboratory equipment

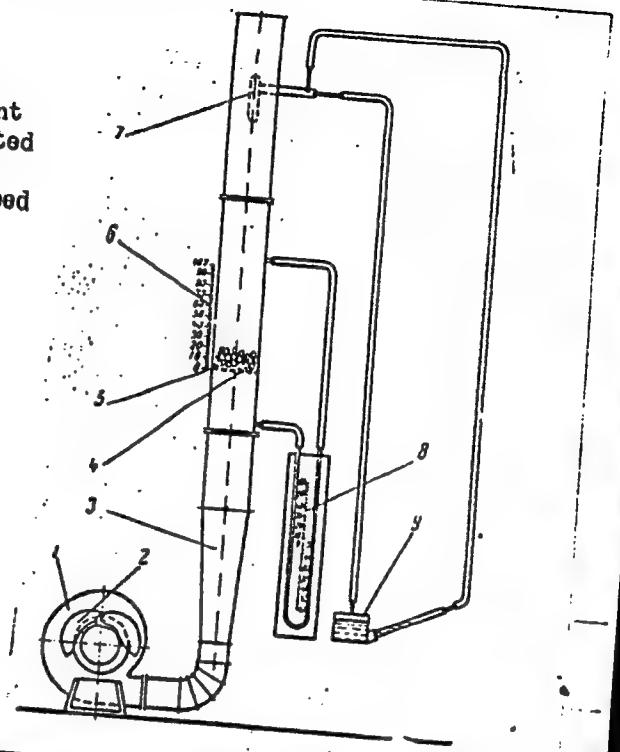
ABSTRACT: Basic parameters of the fluidization process employed in quick-freezing of fruits and vegetables are investigated. These include: hydrodynamic resistance of the supporting grid with various cross sections, hydrodynamic resistance, boiling rate, and porosity of the fruit and vegetable layer. The laboratory apparatus employed in the study is shown in Fig. 1. The process has been studied on peas, cut string beans, cherries, strawberries, peaches, apricots, and tomatoes. The investigation involved two important stages of the process: 1) critical stage at the beginning of the fluidization process, when the products are thrown out of the static state; 2) optimal stage when a layer of uniform concentration of the product in a unit of volume is obtained. It was established that there exists a linear relationship between hydrodynamic resistance Δp_{cr} and Δp_{opt} and the unit weight of the fruit and

Card 1/3

UDC: 634.1.037.5:635.037.5

ACC NR: AP7000676

Fig. 1. Laboratory apparatus for study of the fluidization process: 1 - centrifugal fan; 2 - valve; 3 - air duct with transparent section; 4 - supporting grid; 5 - investigated product (fruit, vegetable, etc); 6 - level indicator; 7 - pneumometric tube; 8 - U-shaped manometer; 9 - micromanometer



Card 2/3

Bulgaria/Chemical Technology. Chemical Products and Their Application -- Food industry, I-28

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 6596

Author: Fikiin, A. G.

Institution: Higher Institute of Canning and Condiments Industry

Title: Chemical Changes in Vegetables on Freezing

Original Publication: Nauch. tr. Vissh. In-t khranit. i vkus. prom-st -- Plovdiv, 1955, 2, 111-122

Abstract: A study of chemical changes occurring on blanching, freezing and storage at -13° and -18° of peas, beans, [illegible]

ACC NR: AP700676

vegetables G. The rate of air current required to sustain the critical and optimal stages is a parabolic function of the unit weight of the product. The porosity of the layer at the optimal stage is 0.53—0.69. Orig. art. has: 5 figures, 1 table, and 15 equations.

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 001/ SOV REF: 007/ OTH REF: 006

Card 3/3

Bulgaria/Chemical Technology. Chemical Products and Their Application -- Food industry, I-28

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 6596

Abstract: place. On storage of frozen vegetables for 7 months (peas, beans) and 5 months (peppers, tomatoes), at -18° and -13°, the contents of nitrogenous substances, carbohydrates and acids undergo no change. In vegetables which have not been blanched the amount of carbohydrates remains constant while the content of acids increases, due to biochemical transformations, by 17-17.5% at -18° and by 23.5-25% at -13°. The amount of ascorbic acid depends on temperature of storage and on the species and variety characteristics of the frozen vegetables.

Card 2/2

PIKIIN, A.

Effect of blanching on changes in the chemical composition and nutrient value of frozen peppers [with summary in English]. Khol. tekh. 35 no.4:58-62 Jl-Ag '58. (MIRA 11:10)

1. Vyasshiy institut pishchevoy i vkusovoy promyshlennosti, Bolgariya.
(Pepper) (Food, Frozen)

FIHEL, A.

Computing the changes of the enthalpy (the heat content) of food products in cooling and freezing processes. p. 17
Tekhnika Vol. 7, No. 5, 1958. Sofiia, Bulgaria.

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 10, Oct. 58

BULGARIA/Chemical Technology. Chemical Products and Their Applications. Food Industry. H

Abs Jour : Ref Zhur-Khimiya, No 6, 1959, 21247

Author : Fikin, An. G.
Inst :
Title : The Study of Changes in the Caloric Content of Food Products When Chilled and Frozen.

Orig Pub : Tekhnika (B"lg.), 1958, 7, No 5, 17-18

Abstract : No abstract.

Card : 1/1

Card:

FIKIIN, A.G.

Table for the calculation of the heat content of food products. Izv.vys.ucheb.zav.; pishch.tekh. no.5:104-107 '59. (MIRA 13:4)

1. Vyasshiy institut pishchevoy i vkusovoy promyshlennosti, g. Plovdiv, Bolgariya.
(Food, Frozen)

FIKIIN, Angel, kand. na tekhnicheskite nauki; NEDEV, Nediu; USHEVA, Velichka

Comparative studies on the technological suitableness of certain peach varieties. Selskostop nauka 1 no.4/5:477-484 '62.

1. Vissh institut po khranitelna promoshlenost v Plovdiv (for Fikiin). 2. Raionen nauchnoizsledovatelski institut po ovoshtarstvo v Plovdiv (for Nedev). 3. Nauchnoizsledovatelski tekhnologicheski institut po khranitelna promishlenost v Plovdiv (for Usheva).

FIKIIN, Angel; ANGELOV, Angel

Technological suitability of some strawberry varieties for deep freezing. Selskostop nauka 2 no. 3/4 388-396 '63.

FIKIIN, Angel G., dotsent k. t. n.

Variations of the enthalpy and cold comsumption in the cooling and refrigeration of foodstuff. Tekhnika Bulg 12 no.6:16-20 '63.

ACC NR: AP7000676 (A) SOURCE CODE: UR/0066/66/000/011/0033/0037

AUTHORS: Fikiin, A.; Dichev, St.; Fikiyna, Iv.

ORG: Scientific Research Institute of Canning Industry, Plovdiv, Bulgaria (Nauchno-issledovatel'skiy institut konservnoy promyshlennosti) 7

TITLE: Fundamental parameters characterizing the fluidization process of layers of fruits and vegetables

SOURCE: Kholodil'naya tekhnika, no. 11, 1966, 33-37

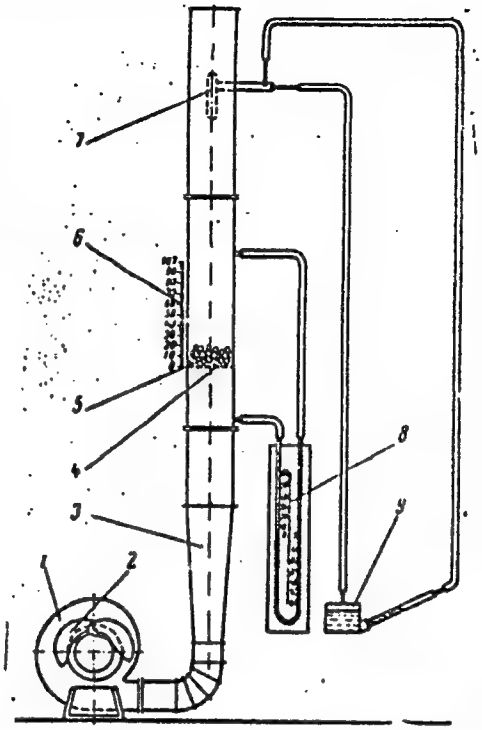
TOPIC TAGS: food preservation, refrigeration equipment, laboratory equipment

ABSTRACT: Basic parameters of the fluidization process employed in quick-freezing of fruits and vegetables are investigated. These include: hydrodynamic resistance of the supporting grid with various cross sections, hydrodynamic resistance, boiling rate, and porosity of the fruit and vegetable layer. The laboratory apparatus employed in the study is shown in Fig. 1. The process has been studied on peas, cut string beans, cherries, strawberries, peaches, apricots, and tomatoes. The investigation involved two important stages of the process: 1) critical stage at the beginning of the fluidization process, when the products are thrown out of the static state; 2) optimal stage when a layer of uniform concentration of the product in a unit of volume is obtained. It was established that there exists a linear relationship between hydrodynamic resistance Δp_{cr} and Δp_{opt} and the unit weight of the fruit and

Card 1/3 UDC: 634.1.037.5:635.037.5

ACC NR: AP7000676

Fig. 1. Laboratory apparatus for study of the fluidization process: 1 - centrifugal fan; 2 - valve; 3 - air duct with transparent section; 4 - supporting grid; 5 - investigated product (fruit, vegetable, etc); 6 - level indicator; 7 - pneumometric tube; 8 - U-shaped manometer; 9 - micromanometer



Card 2/3

ACC NR: AP700676

vegetables G. The rate of air current required to sustain the critical and optimal stages is a parabolic function of the unit weight of the product. The porosity of the layer at the optimal stage is 0.53—0.69. Orig. art. has: 5 figures, 1 table, and 15 equations.

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 001/ SOV REF: 007/ OTH REF: 006

Card 3/3

FIKLEWICZ, Gertruda

Mycological observations from the Bagna peat bog near the town of Oborniki. Biologia Poznan no.5:149-154 '64.

1. Department of Plant Taxonomy and Geography of the A. Mickiewicz University, Poznan.

FIKLIK, Karel; CERNY, Karel

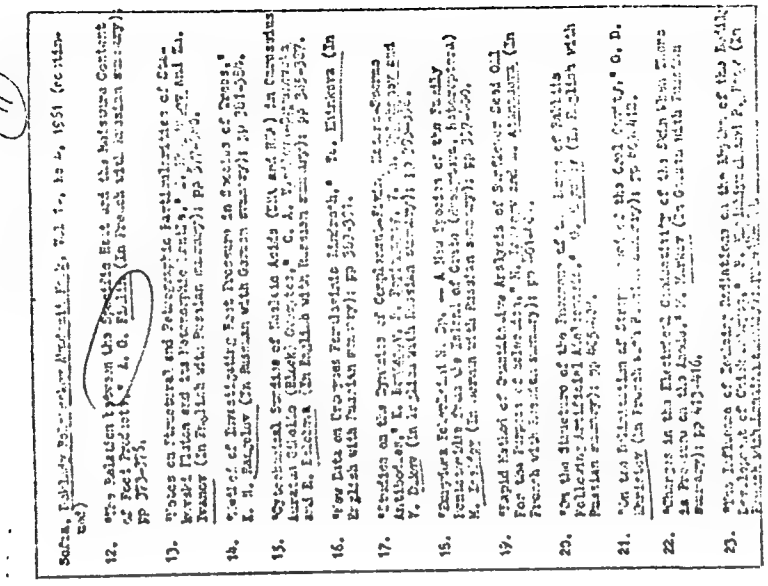
Experiences at the pediatric ward of the Czechoslovakian hospital in Chonjin in Korea. Cesk. pediat. 12 no.9:820-824 5 Sept 57.
(HOSPITALS,
pediatric ward in Czech. hosp. in N. Korea (Cz))
(PEDIATRICS,
same)

KUCERA, J., inz. CSc.; FIKLIK, V.

Coordination of transformer insulation levels with regard to the stress on winding insulation. Bul EGU no. 5:9-16 '63.

FIKLIN, A.G.

(19)



FIKLIN, A.G.

Relation between specific heat and the content of moisture in food products. Doklady BAN 14 no.4:373-376 '61.

1. Note presentee par D. Ivanoff [D.Ivanov] membre de l'Academie.

FIKLISTOV, I.N.

Using natural gas to burn clinkers in shafr furnaces. TSement 22 no.5:26-27 S-O '56. (MLRA 10:1)

1. L'vovskiy politekhnicheskiy instutut.
(L'vov Province--Cement industries)
(Gas, Natural)

FIKHSTOV, I.N.; AKSEL'RUD, G.A.

Kinetics of mass transfer in a vibrating movement of a solid in a liquid. Dokl. IPI 5 no. 1 2:104-108 '63. (MIRA 17:6)

FIKLISTOV, I.N.; AKSEL'RUD, G.A.

Kinetics of mass transfer with oscillatory motion of a solid body in a fluid flow. Inzh.-fiz. zhur. 7 no.1:45-48 Ja '64. (MIRA 17:2)

1. Politekhnicheskiy institut, L'vov.

FIK'NEL, M.I.

Heat radiators Moskva, Gos. izd-vo lit-ry po stroitel'stvu i arkhitekture, 1952.
138 p. (55-341 54)

TH7480.F5

HORVATH, Janos (Zalaegerszeg, Martirok u.30); FIKO, Stephan (Trondheim, Norway)

TV - DX. Radiotechnika 10 no.8:240-241 Ag '60.

FIKOV, A.;TOPUVA, .S.;KOSLAKOVA, V.

FIKOV, A.

"Tuberculosis in Infants of Our Country." p. 2,
(ZDRAVEN FRONT, No. 46, Nov. 1954, Sofiya, Bulgaria)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4
No. 5, May 1955, Uncl.

FIKOV, A., Dots.

Megacolon in childhood. Khirurgiia (Sofiia) 16 no.6:523-530 '63.

(MEGACOLON) (RECTUM) (SIGMOID)
(SURGERY, OPERATIVE)

FIKOV, Asen

Bulgaria

No degree listed

No affiliation listed

Sofia, Pediatriya, supplement of Suvremenna Meditsina, No 2, 1962, pp 26-31.

"Etiology, Clinical Aspects, and Diagnosis of Epilepsy in Childhood"

BULGARIA

As. FIKOV [Affiliation not given]

"Vitamin K and Its Uses in Children."

Sofia, Suvremenna Meditsina, Vol 13, No 10, 1962; pp 44-47.

Abstract: General review of hemorrhagic diatheses stressing mainly the role of physiologically immature liver function in newborns and infants having any such condition, and modalities of treatment with vitamin K derivatives. No references.

1/1

FIKOVA-DELIANOVA, P.

Results of Lyries method of surgical therapy of ozena. Khirurgiia, Sofia 11 no.9:843-848 1958.

1. Institut za spetsializatsiia i usuvurshenstvuvane na lekarite--Sofiia Katedra po ushni, nosni i gurleni bolesti zav. katedrata: prof. Sv. Boilikev.

(RHINITIS, ATROPHIC, surg.
Lyries method (Bul))

ACCESSION NR: AP4019200 S/0056/64/046/002/0409/0414

AUTHORS: Antuf'yev, Yu. P.; Bunduk, T.; Fikri, A.; Machali, F.; Sorokin, P. V.

TITLE: Investigation of the $Li^7(p, \alpha)He^4$ reaction induced by polarized protons with energy 0.5--2 MeV

SOURCE: Zhurnal eksper. i teor. fiz., v. 46, no. 2, 1964, 409-414

TOPIC TAGS: lithium 7, helium 4, proton Alpha reaction, proton polarization, sensitivity to proton polarization, elastic proton scattering, left right asymmetry

ABSTRACT: The sensitivity of the $Li^7(p,\alpha)He^4$ reaction to proton polarization, defined as the ratio of anisotropic component of the reaction cross section to isotropic component, was measured using polarized protons obtained from the elastic scattering reaction $C^{12}(p,p)C^{12}$ at a 60° angle. The sensitivity r was determined from

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ACCESSION NR: AP4019200

the left-right asymmetry R, defined as the ratio of the counter readings in positions 7 and 8, respectively (Fig. 1), using the relation

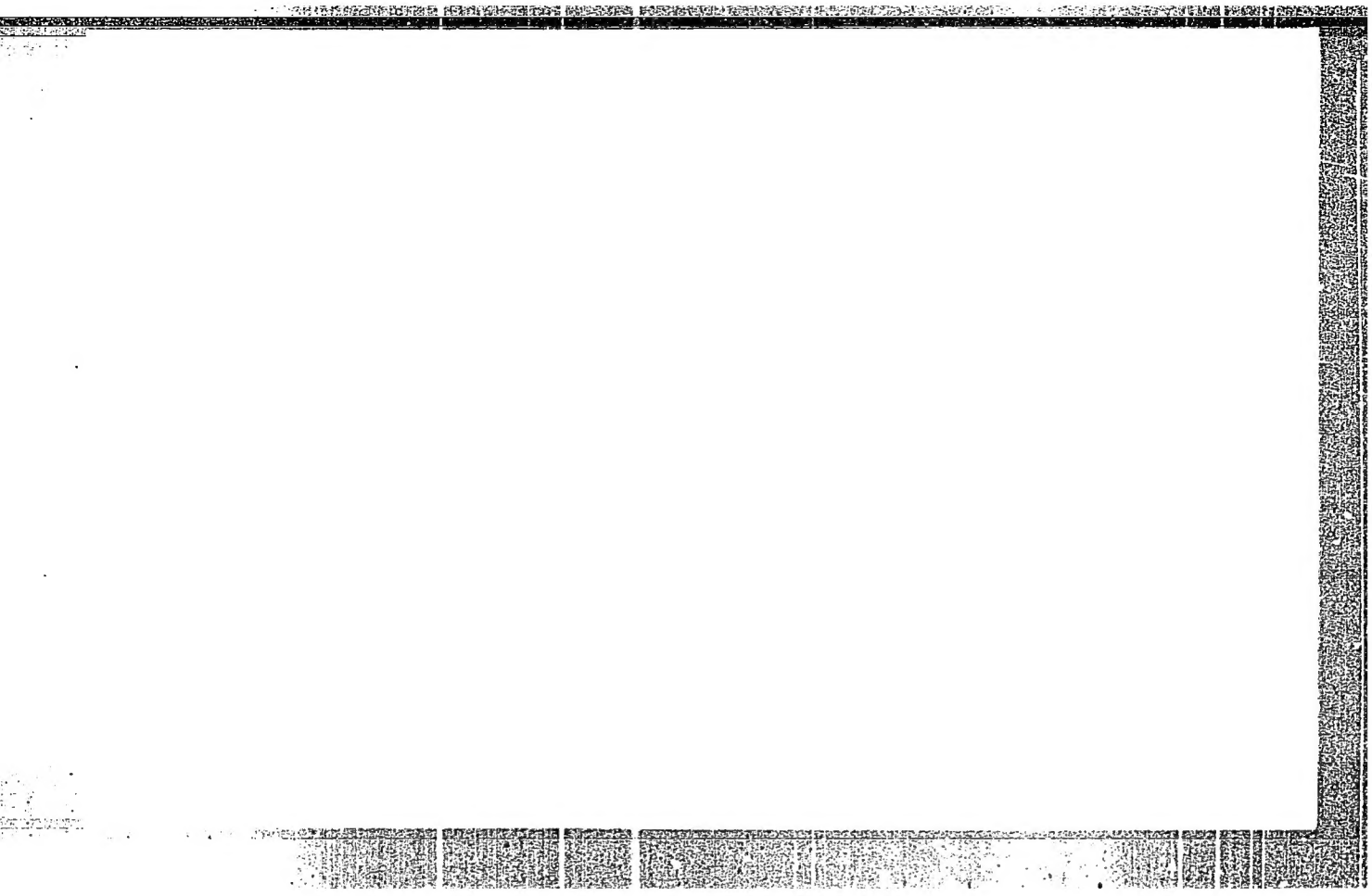
$$R = (1 + P_1 r)/(1 - P_1 r),$$

where P_1 is the polarization of the elastically scattered protons. At low energies and at an angle of 45° the sensitivity does not exceed 10%, but rises smoothly to 60% at 2 MeV with increasing proton energy. The results are in good agreement with those of L. Wolfenstein (Phys. Rev. v. 75, 1664, 1949) at 225° phase shift and of K. Bearpark et al (Nucl. Phys. v. 33, 648, 1962). "The authors are indebted to Prof. El-Nadi for collaboration in the work. We are grateful to A. M. El-Nashar, G. F. Kirshin, to Mustafa Raga for help with the experiments, and to G. Akseneva for help in preparing the article for publication." Orig. art. has: 5 figures, 3 formulas, and 1 table.

Card 2/5

ANTUF'YEV, Yu.P.; BUNDUK, T.; FIKRI, A.; MACHALI, F.; SOROKIN, P.V.

Study on the reaction Li^7 (p, α)He^4 induced by 0.5 - 2 Mev, polarized protons. Zhur. eksp. i teor. fiz. 46 no.2:409-414 F '64. (MIRA 17:9)



FIKS, A.F. (Odessa)

Nikolai Alekseevich Stroganov, his prosectorial, scientific, educational, and public activities; on the 120th anniversary of his birth. Arkh.pat. no.7:71-74 '62. (MIRA 15:9)

1. Iz patomorfologicheskoy laboratorii Odesskogo oblastnogo onkologicheskogo dispansera (glavnyy vrach N.A. Novikova).
(STROGANOV, NIKOLAI ALEKSEEVICH, 1842-)

FIKS, A.F. (Odessa)

"Course on pathology; pathological physiology and pathological anatomy" by IA.L.Rapoport. Reviewed by A.F.Fiks. Fel'd i akush. 24 no.4:60-62 Ap '59. (MIRA 12:5)
(PATHOLOGY) (RAPOPORT, IA.L.)